

*Pyrolobus fumarius* DNA Polymerase (IPY2)

I

(SEQ ID NO:1)ATG ACT GAA GTT GTA TTC ACG GTT TTA GAC TCT AGC TAC GAG GTT GTT GGT

(SEQ ID NO:2)Met Thr Glu Val Val Phe Thr Val Leu Asp Ser Ser Tyr Glu Val Val Gly

AAA GAG CCT CAG GTA ATC ATA TGG GGT ATT GCT GAG AAC GGC GAG AGG GTA

Lys Glu Pro Gln Val Ile Ile Trp Gly Ile Ala Glu Asn Gly Glu Arg Val

GTC CTC ATT GAC AGG TCT TTT CGC CCA TAC TTC TAT GCG CTG CTT GCA CCG

Val Leu Ile Asp Arg Ser Phe Arg Pro Tyr Phe Tyr Ala Leu Leu Ala Pro

GGC GCC GAT CCT AAG CAG GTA GCA CAA CGT ATT CGT GCA TTG AGT AGG CCA

Gly Ala Asp Pro Lys Gln Val Ala Gln Arg Ile Arg Ala Leu Ser Arg Pro

AAG AGC CCG ATT ATA GGT GTA GAG GAT GAC AAG AGG AAG TAC TTC GGG AGG

Lys Ser Pro Ile Ile Gly Val Glu Asp Asp Lys Arg Lys Tyr Phe Gly Arg

CCT CGT AGG GTC TTA CGT ATT CGC ACC GTG CTA CCC GAG GCT GTT AGG GAG

Pro Arg Arg Val Leu Arg Ile Arg Thr Val Leu Pro Glu Ala Val Arg Glu

TAT CGC GAA CTC GTA AAG AAC GTT GAT GGT GTT GAG GAT GTT CTA GAG GCG

Tyr Arg Glu Leu Val Lys Asn Val Asp Gly Val Glu Asp Val Leu Glu Ala

GAT ATA CGC TTC GCT ATG CGC TAT CTC ATA GAT CAC GAT CTA TTT CCT TTC

Asp Ile Arg Phe Ala Met Arg Tyr Leu Ile Asp His Asp Leu Phe Pro Phe

ACC TGG TAC CGT GTA GAG GCT GAG CCC CTC GAG AAC AAG ATG GGC TTC CGT

Thr Trp Tyr Arg Val Glu Ala Glu Pro Leu Glu Asn Lys Met Gly Phe Arg

GTC GAC AAG GTA TAC CTG GTT AAG AGC AGG CCG GAG CCA CTT TAT GGT GAG

Val Asp Lys Val Tyr Leu Val Lys Ser Arg Pro Glu Pro Leu Tyr Gly Glu

FIGURE 1-A

GCT CTC GCA CCA ACC AAG CTT CCC GAT CTT AGG ATA CTC GCG TTC GAT ATT  
 Ala Leu Ala Pro Thr Lys Leu Pro Asp Leu Arg Ile Leu Ala Phe Asp Ile

GAA GTT TAT AGC AAG CAA GGG TCG CCG CGT CCA GAG CGC GAT CCT GTA ATA  
 Glu Val Tyr Ser Lys Gln Gly Ser Pro Arg Pro Glu Arg Asp Pro Val Ile

GTG ATA GCT GTG AAG ACT GAC GAT GGC GAT GAG GTG CTA TTC ATT GCA GAG  
 Val Ile Ala Val Lys Thr Asp Asp Gly Asp Glu Val Leu Phe Ile Ala Glu

GGC AAA GAC GAT CGA AAA CCG ATA CGC GAG TTT GTA GAG TAC GTG AAG AGG  
 Gly Lys Asp Asp Arg Lys Pro Ile Arg Glu Phe Val Glu Tyr Val Lys Arg

TAT GAC CCC GAC ATA ATA GTC GGT TAT AAC AAC AAT CAT TTC GAT TGG CCT  
 Tyr Asp Pro Asp Ile Ile Val Gly Tyr Asn Asn Asn His Phe Asp Trp Pro

TAT CTT TTG AGG CGC GCC CGC ATC CTA GGC ATA AAG CTT GAT GTG ACT AGA  
 Tyr Leu Leu Arg Arg Ala Arg Ile Leu Gly Ile Lys Leu Asp Val Thr Arg

AGA GTT GGC GCC GAG CCC ACC ACT AGC GTA CAT GGG CAC GTC TCT GTC CCT  
 Arg Val Gly Ala Glu Pro Thr Thr Ser Val His Gly His Val Ser Val Pro

GGC AGG CTT AAC GTA GAT CTG TAC GAC TAT GCC GAA GAG ATG CCA GAG ATC  
 Gly Arg Leu Asn Val Asp Leu Tyr Asp Tyr Ala Glu Glu Met Pro Glu Ile

AAG ATA AAG AGT CTC GAG GAG GTC GCA GAG TAT CTA GGC GTG ATG AAG AAG  
 Lys Ile Lys Ser Leu Glu Glu Val Ala Glu Tyr Leu Gly Val Met Lys Lys

AGT GAA CGC GTT ATC ATC AAT TGG TGG GAG ATT CCA GAC TAT TGG GAC GAC  
 Ser Glu Arg Val Ile Ile Asn Trp Trp Glu Ile Pro Asp Tyr Trp Asp Asp

CCG AAG AAG AGA CCA CTA TTA CTG CAA TAC GCG CGC GAC GAT GTC CGC GCT  
 Pro Lys Lys Arg Pro Leu Leu Leu Gln Tyr Ala Arg Asp Asp Val Arg Ala

ACT TAC GGC TTA GCC GAG AAG ATA TTG CCG TTT GCT ATC CAG TTG TCG TAC

FIGURE 1-B

Thr Tyr Gly Leu Ala Glu Lys Ile Leu Pro Phe Ala Ile Gln Leu Ser Tyr

GTA ACA GGT CTC CCA CTA GAC CAG GTA GGT GCG ATG AGT GTT GGC TTT CGA  
Val Thr Gly Leu Pro Leu Asp Gln Val Gly Ala Met Ser Val Gly Phe Arg

CTT GAA TGG TAC CTG ATA CGC GCG GCG TTT AAG ATG AAA GAG CTT GTG CCG  
Leu Glu Trp Tyr Leu Ile Arg Ala Ala Phe Lys Met Lys Glu Leu Val Pro

AAC CGC GTT GAG CGC CCA GAA GAG ACT TAC CGT GGC GCT ATA GTT CTT GAG  
Asn Arg Val Glu Arg Pro Glu Glu Thr Tyr Arg Gly Ala Ile Val Leu Glu

CCG TTG AGA GGC GTG CAC GAG AAT ATA GCC GTA CTC GAC TTT AGC TCG ATG  
Pro Leu Arg Gly Val His Glu Asn Ile Ala Val Leu Asp Phe Ser Ser Met

TAC CCA AAC ATC ATG ATA AAG TAC AAT GTT GGT CCT GAC ACG CTT GTG AGG  
Tyr Pro Asn Ile Met Ile Lys Tyr Asn Val Gly Pro Asp Thr Leu Val Arg

CCT GGT GAA AAG TGT GGC GAG TGT GGT TGC TGG GAG GCC CCG GAG GTC AAG  
Pro Gly Glu Lys Cys Gly Glu Cys Gly Cys Trp Glu Ala Pro Glu Val Lys

CAC AGG TTC CGT AGG TGT CCG CCC GGC TTC TTC AAG ACA GTT CTT GAG AGG  
His Arg Phe Arg Arg Cys Pro Pro Gly Phe Phe Lys Thr Val Leu Glu Arg

CTG TTA GAG CTT CGT AAG CGT GTG CGT GCT GAA ATG AAG AAG TAT CCT CCG  
Leu Leu Glu Leu Arg Lys Arg Val Arg Ala Glu Met Lys Lys Tyr Pro Pro

GAT AGC CCA GAA TAT CGA CTG TTG GAT GAA AGG CAG AAG GCG TTG AAG GTT  
Asp Ser Pro Glu Tyr Arg Leu Leu Asp Glu Arg Gln Lys Ala Leu Lys Val

CTT GCA AAC GCT AGT TAC GGC TAC ATG GGT TGG AGC GGC GCT AGG TGG TAT  
Leu Ala Asn Ala Ser Tyr Gly Tyr Met Gly Trp Ser Gly Ala Arg Trp Tyr

TGC AGG GAG TGC GCA AAG GCT GTC ACG GCT TGG GGT AGG CAC CTC ATA CGC  
Cys Arg Glu Cys Ala Lys Ala Val Thr Ala Trp Gly Arg His Leu Ile Arg

FIGURE 1-C

ACC GCC ATC AAC ATA GCT CGT AAA CTA GGC CTC AAG GTG ATC TAC GGT GAC  
 Thr Ala Ile Asn Ile Ala Arg Lys Leu Gly Leu Lys Val Ile Tyr Gly Asp

ACA GAT TCG CTC TTC GTG ACC TAT GAT CCG GAG AAG GTG GAA AAT TTC ATC  
 Thr Asp Ser Leu Phe Val Thr Tyr Asp Pro Glu Lys Val Glu Asn Phe Ile

AAA ATT ATA AAG GAG GAG CTG GGG TTC GAA ATC AAG CTA GAG AAG GTG TAC  
 Lys Ile Ile Lys Glu Glu Leu Gly Phe Glu Ile Lys Leu Glu Lys Val Tyr

AAA CGC TTA TTC TTT ACA GAG GCT AAG AAG AGG TAC GCT GGC CTT CTC GAG  
 Lys Arg Leu Phe Phe Thr Glu Ala Lys Lys Arg Tyr Ala Gly Leu Leu Glu

GAC GGA CGT ATA GAT ATT GTC GGT TTC GAG GCT GTA CGT GGC GAT TGG TGT  
 Asp Gly Arg Ile Asp Ile Val Gly Phe Glu Ala Val Arg Gly Asp Trp Cys

GAA CTC GCC AAG GAG GTT CAG ACT AAG GTT GTC GAA ATA GTA TTG AAG ACG  
 Glu Leu Ala Lys Glu Val Gln Thr Lys Val Val Glu Ile Val Leu Lys Thr

AGT GAG GTG AAC AAG GCT GTA GAG TAC GTC AGG AAG ATT GTG AAA GAG TTG  
 Ser Glu Val Asn Lys Ala Val Glu Tyr Val Arg Lys Ile Val Lys Glu Leu

GAG GAG GGC AAG GTT CCC ATA GAG AAG CTT GTA ATC TGG AAG ACC CTT AGT  
 Glu Glu Gly Lys Val Pro Ile Glu Lys Leu Val Ile Trp Lys Thr Leu Ser

AAG CGT CTT GAG GAG TAC ACA ACG GAG GCA CCA CAC GTC GTT GCA GCG AAG  
 Lys Arg Leu Glu Glu Tyr Thr Thr Glu Ala Pro His Val Val Ala Ala Lys

AGG ATG CTG TCA GCA GGC TAC CGG GTA AGC CCA GGC GAC AAG ATA GGG TAT  
 Arg Met Leu Ser Ala Gly Tyr Arg Val Ser Pro Gly Asp Lys Ile Gly Tyr

GTA ATA GTG AAG GGT GGT GGC CGT ATC AGT CAA AGA GCA TGG CCA TAC TTC  
 Val Ile Val Lys Gly Gly Gly Arg Ile Ser Gln Arg Ala Trp Pro Tyr Phe

FIGURE 1-D

ATG GTC AAG GAT CCT AGC CAG ATA GAC GTG ACC TAC TAT GTT GAC CAC CAA  
Met Val Lys Asp Pro Ser Gln Ile Asp Val Thr Tyr Tyr Val Asp His Gln

ATC ATC CCG GCT GCA TTG AGA ATA CTG GGC TAC TTT GGC ATC ACC GAG AAG  
Ile Ile Pro Ala Ala Leu Arg Ile Leu Gly Tyr Phe Gly Ile Thr Glu Lys

AAG CTG AAA GCA AGT GCA ACT GGG CAG AAG ACT CTC TTC GAC TTT CTA GCC  
Lys Leu Lys Ala Ser Ala Thr Gly Gln Lys Thr Leu Phe Asp Phe Leu Ala

2412

AAG AAG AGC AAG TAA

Lys Lys Ser Lys End

FIGURE 1-E

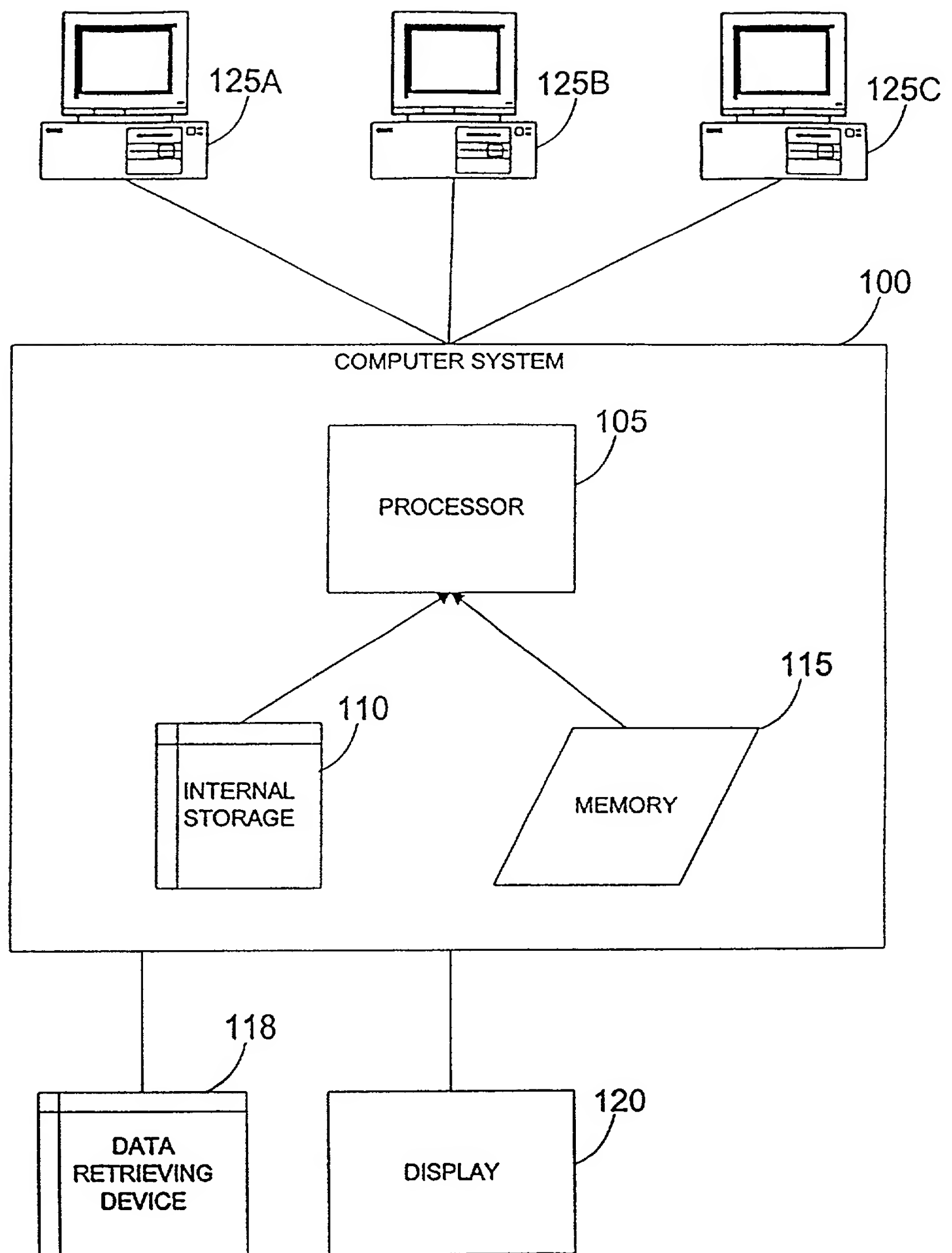


FIGURE 2

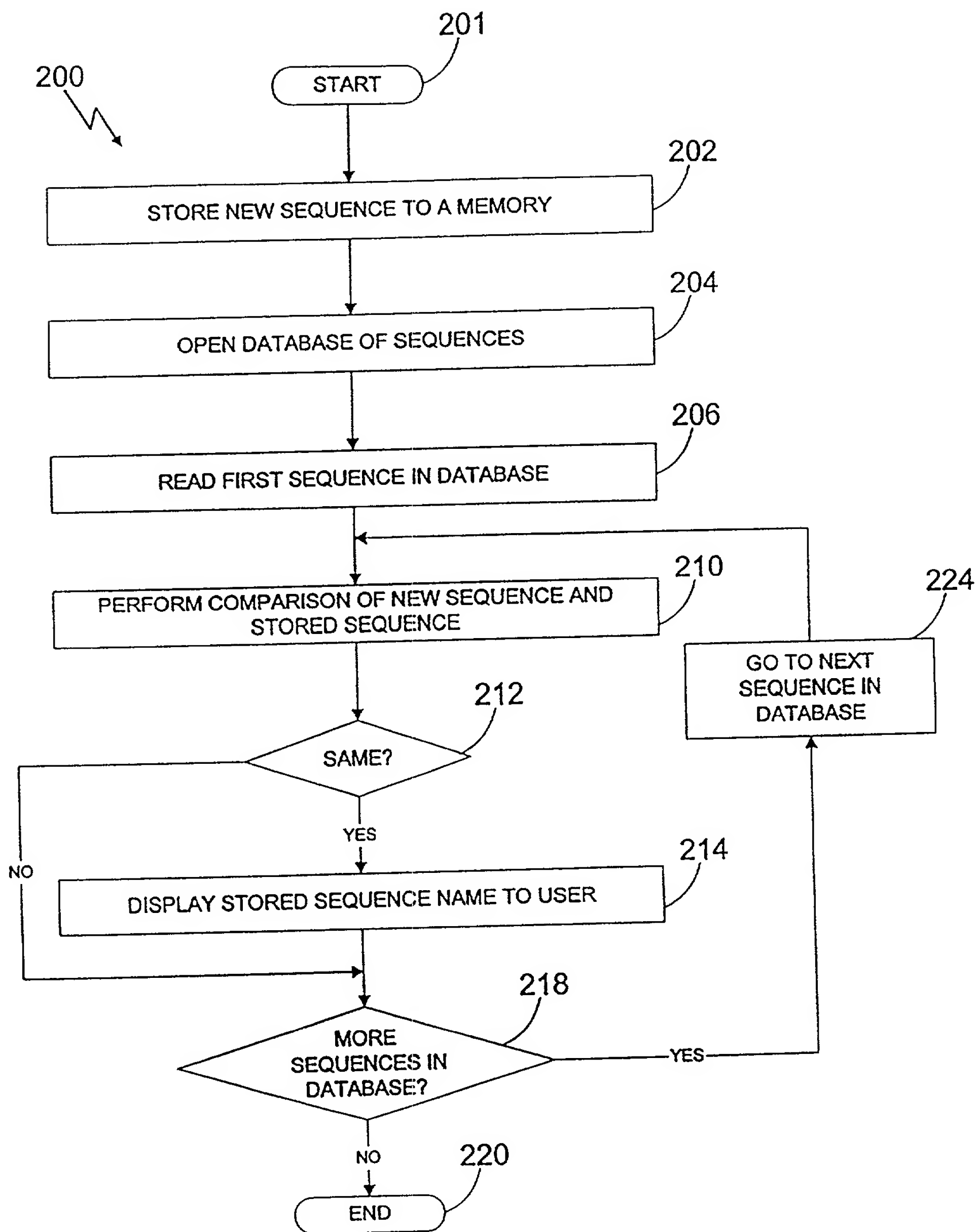


FIGURE 3

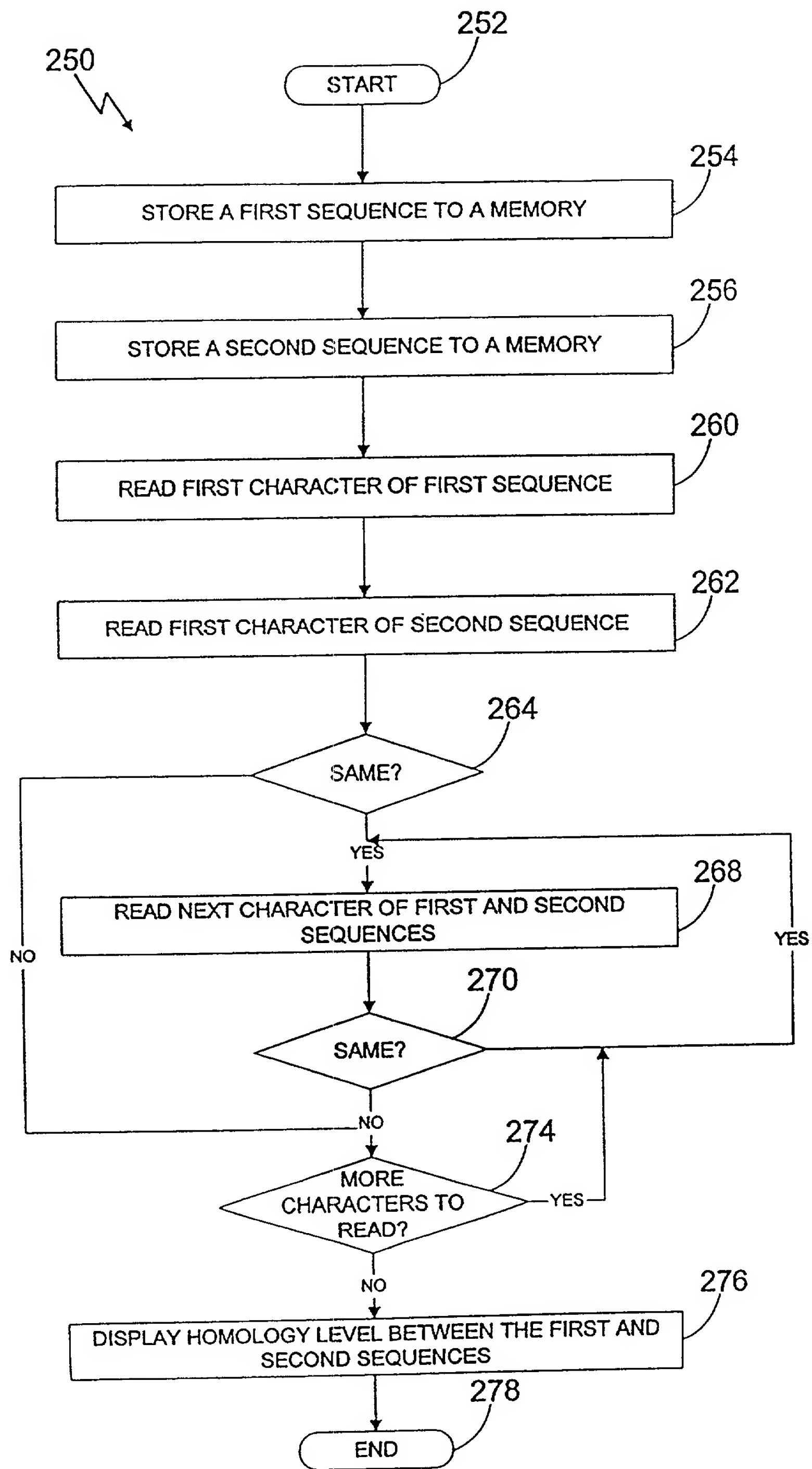


FIGURE 4



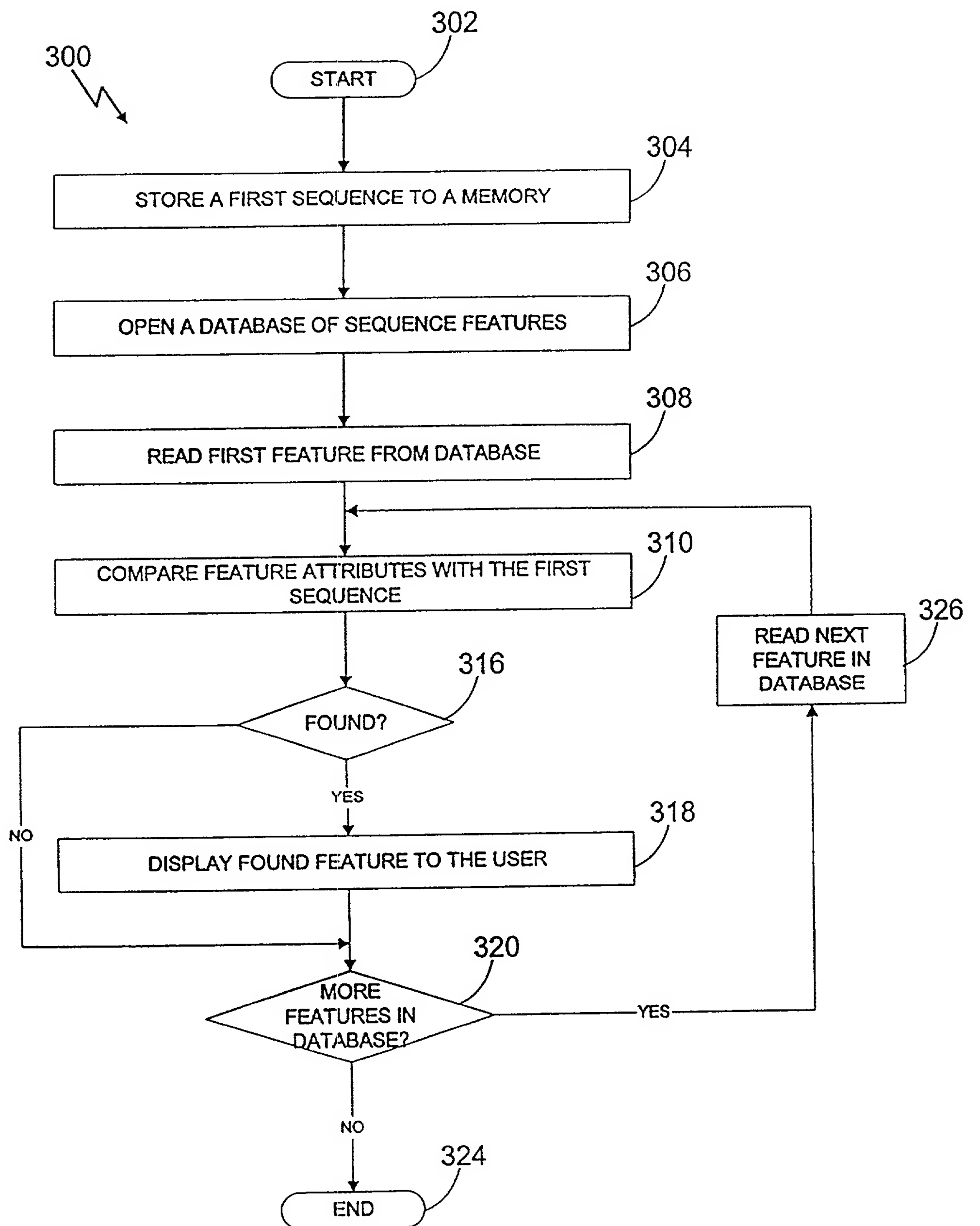


FIGURE 5